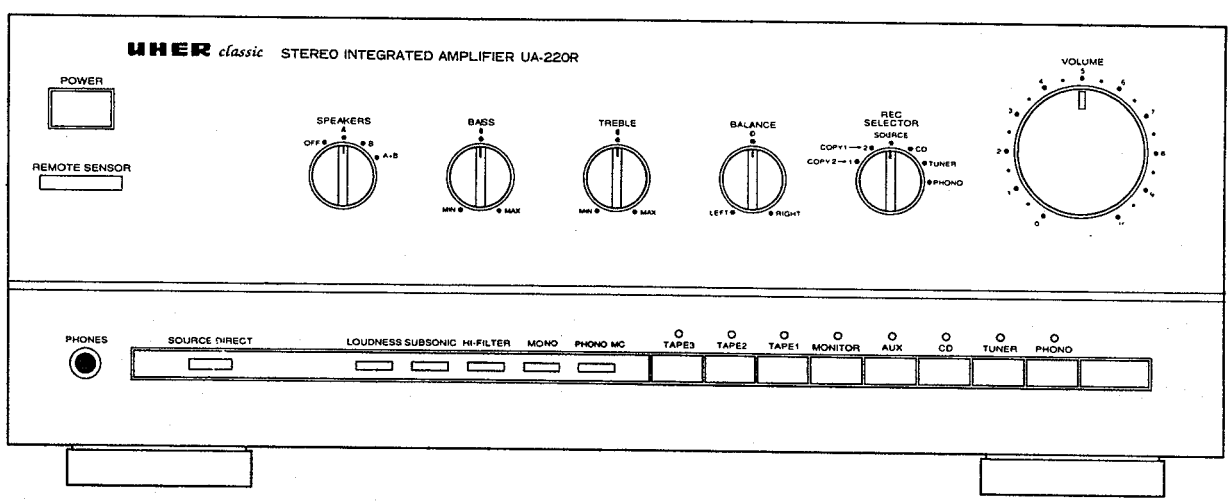
UHER

SERVICE MANUAL

UA-220R

STEREO AMPLIFIER



SPECIFICATIONS

Amplifier section

Continuous average power output is 85 watts per channel, min., at 8 ohms from 20Hz to 20KHz with no more than 0.03% total harmonic distortion. Output power(Both channels driven)

Rated (20Hz−20KHz)
8ohms, T.H.D. 0.03%, IHF·····85W
4ohms, T.H.D. 0.1%, DIN·····125W
Pulsed output power
8ohms·····150W
4ohms·····220W
Total harmonic distortion
8ohms, 20Hz−20KHz, 85W·····0.03%
Input(Sensitivity/impedance)
Phono MM·····2.5mV/47Kohms
Phono MC·····0.22mV/100ohms
High level inputs·····150mV/47Kohms
Input overload level
Phono MM·····150mV
Phono MC·····10mV
High level inputs·····8V
Frequency response
Phono MM(20Hz−20KHz)·····+/−1dB
High level input(5Hz−80KHz)·····+1/−3dB
S/N ratio(short−circuited, A network)
Phono MM·····82dB
Phono MC·····70dB
High level inputs·····95dB
Tone control
Bass 50Hz·····+/−10dB
Treble 10KHz·····+/−10dB
Loudness
100Hz·····+10dB
10Khz·····+4dB
Filters
Subsonic·····−18dB/oct.(20Hz)
High·····−12dB/oct.(10KHz)

Miscellaneous

Power requirements·····AC 230V, 50Hz
Power consumption·····410W
Dimensions(W×H×D without footing)
·····435×160×300mm
Weight(net)·····9.5kg

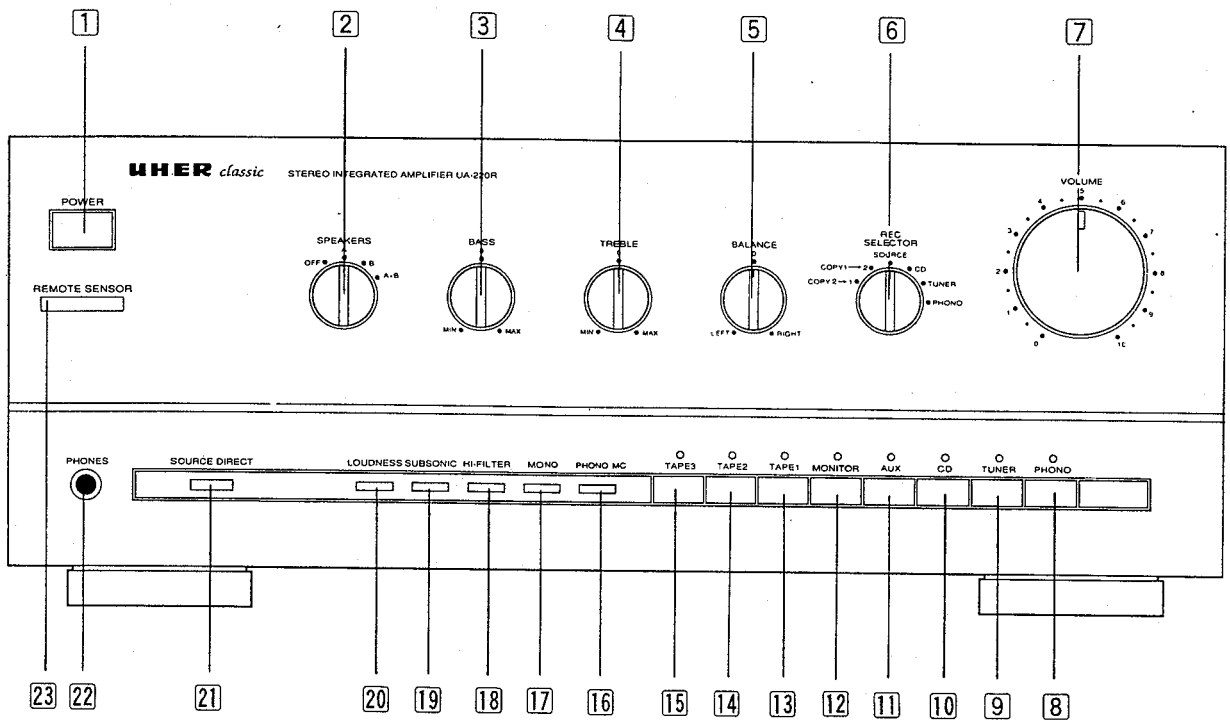
Furnished parts

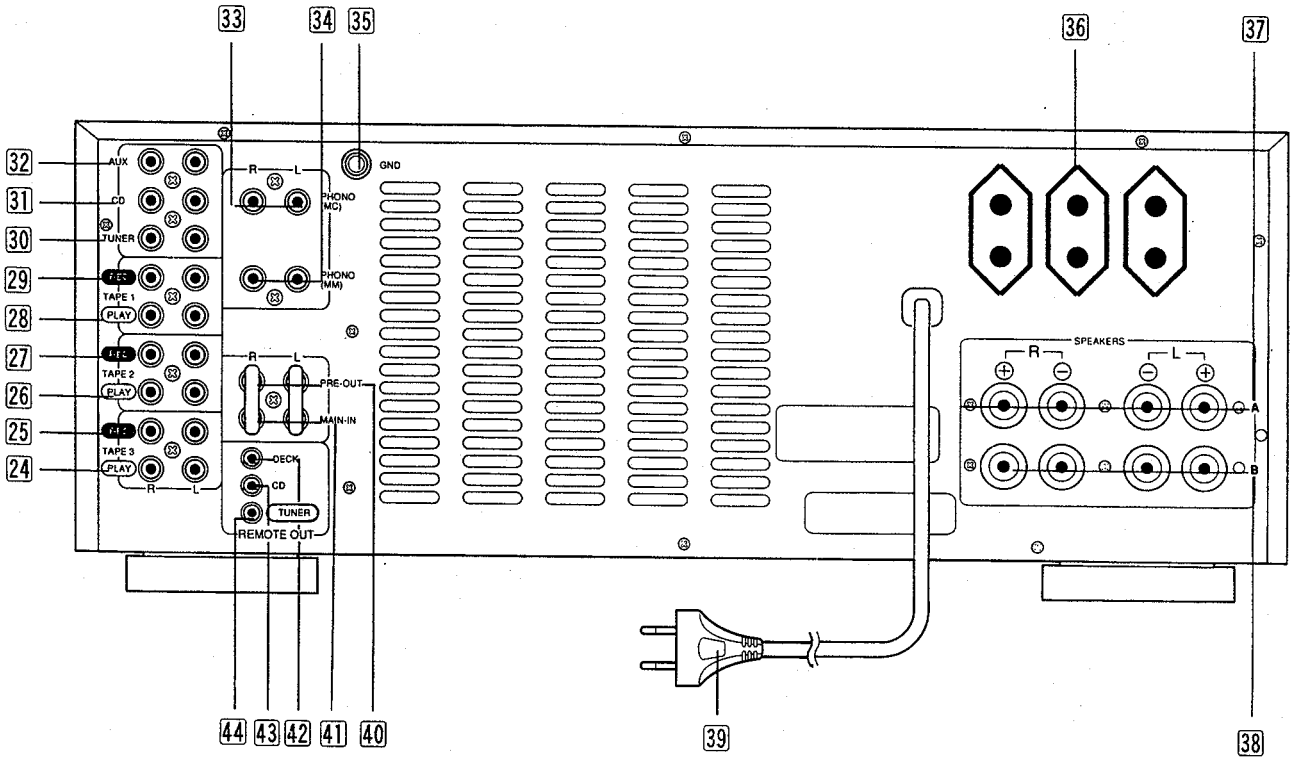
Operating instructions·····1
Remote control ass'y·····1

NOTE :

Specifications and design subject to possible modification without notice due to improvements.

FRONT PANEL FEATURES





Designation **INSCRIPTION**

[1]. Mains Key **POWER**

With this Key you switch the unit on or off.

[2]. Turning knob for speaker selection **SPEAKERS**

With this turning knob you select the desired pair of speakers.

[3]. Bass Control **BASS**

With this control you set the proportion of low frequencies.

[4]. Treble control **TREBLE**

With this control you set the proportion of high frequencies.

[5]. Balance Control **BALANCE**

With this control you set the volume ratio between the two stereo channels.

[6]. Recording selector switch **RECORD SELECTOR**

With this selector switch you determine which program source you want to record.

[7]. Volume control **VOLUME**

With this control you set the total volume.

[8]. Phono key **PHONO**

You press this key if you want to replay disks on a record player connected to the outlets 33 or 34.

[9]. Tuner key **TUNER**

For radio reception via a radio receiver (tuner) connected to the outlets 30 you press this key.

[10]. CD key **CD**

For replay from a compact disk player connected to the outlets 31 you press this key.

[11]. Key for additional program source **AUX**

For replay from a program source connected to the out lets 32 you press this key.

[12]. Monitor switch **TAPE MONITOR**

With this switch you determine from which tape device you want to replay.

[13]. Key for "Tape Recorder 1" **TAPE 1**

To replay a from a tape or cassette recorder connected to one of the outlets 28/29 you press this key.

[14]. Key for "Tape Recorder 2" **TAPE 2**

To replay a from a tape or cassette recorder connected to one of the outlets 26/27 you press this key.

[15]. Key for "Tape Recorder 3" **TAPE 3**

To replay a from a tape or cassette recorder connected to one of the outlets 24/25 you press this key.

[16]. Phono selector switch **PHONO MC**

For replay from a record player with a so-called moving coil system this key must be pressed.

[17]. Operation mode selector **MONO**

With this key you select one of the modes stereo (key not pressed) or mono (key pressed), respectively.

[18]. Noise filter **HI FILTER**

You press this key to suppress disturbances in the upper frequency range (noise etc.).

[19]. Rumble filter **SUBSONIC**

For suppressing noises in the lowest frequency ranges (caused by wavy disks etc.)

[20]. Aurally compensated volume **LOUDNESS**

In case of low volume the human hearing sense can no longer perceive the very high and low frequencies. As long as this key remains locked such frequencies will be amplfied correspondingly.

[21]. On/off switch for sound conrol **SOURCE DIRECT**

When this key is pressed the sound controls 3 and 4 are not active.

[22]. Headphone outlet **PHONES**

You can connect stereo headphones provided with a suitable plug to this outlet.

[23]. Reception window for remote control **REMOTE SENSOR**

Through this window the signals coming from the remote control are received.

㉔. Replay outlets (Tape device 3) **TAPE 3 PLAY**

Connect these outlets to the LINE−output outlets of your third tape device (tape or cassette recorder, DAT−recorder).

㉕. Recording outlets (Tape recorder 3) **TAPE 3 REC**

Connect these outlets to the LINE−input outlets of your third tape device (tape or cassette recorder, DAT−recorder).

㉖. Replay outlets (Tape device 2) **TAPE 2 PLAY**

Connect these outlets to the LINE−output outlets of your second tape device (tape or cassette recorder, DAT−recorder).

㉗. Recording outlets (Tape recorder 2) **TAPE 2 REC**

Connect these outlets to the LINE−input outlets of your second tape device (tape or cassette recorder, DAT−recorder).

㉘. Replay outlets (Tape device 1) **TAPE 1 PLAY**

Connect these outlets to the LINE−output outlets of your second tape device (tape or cassette recorder, DAT−recorder).

㉙. Recording outlets (Tape recorder 1) **TAPE 1 REC**

Connect these outlets to the LINE−input outlets of your tape device (tape or cassette recorder, DAT−recorder).

㉚. Tuner outlets **TUNER**

Connect your tuner to these outlets.

㉛. CD outlets **CD**

Connect a compact disc player to these outlets.

㉜. Outlets for additional program source **AUX**

To these outlets you can connect an additional high level program source (for ex. an additional tape or cassette device or a DAT−recorder) for replay.

㉝. Phono outlets MC **PHONO MC**

If your record player is equipped with a moving coil system you connect it to these outlets.

㉞. Phono outlets MM **PHONO MM**

If your record player is equipped with a moving magnet system you connect it to these outlets.

㉟. Ground terminal **GND**

If your record player is equipped with a ground cable you connect it to this terminal clamp.

㊱. Outlets for the other system components **AC OUTLETS**

You can connect the other devices of your stereo equipment to these outlets (total power input max. 550 W). The devices are then switched on or off, respectively, via this amplifier.

㊲. Speaker Screw Terminals A **SPEAKER A**

You connect your main pair of speaker boxes to this clamp connection outlet.

㊳. Speaker Screw Terminals B **SPEAKER B**

To this clamp connection outlet you can connect an additional pair of speaker boxes.

㊴. Mains cable **POWER IN**

The plug of this cable must be put into a 230V/50 Hz mains socket.

㊵. Output outlets pre−amplifier **PRE−OUT**

Connect these outlets to the "MAIN−IN" outlets 41, or, if existing, to the input outlets of your equailzer.

㊶. Input sockets for final amplifier **MAIN−IN**

Connect these outlets either to the "PRE−OUT" outlets 40, or, if existing, to the output outlets of your equalizer.

㊷. remote control outlet cassette deck **REMOTE OUT DECK**

To this outlet you can connect the cassette decks UCT−252CR or UCT−370CR by means of the special cable provided with the cassette decks and then remote control their major functions.

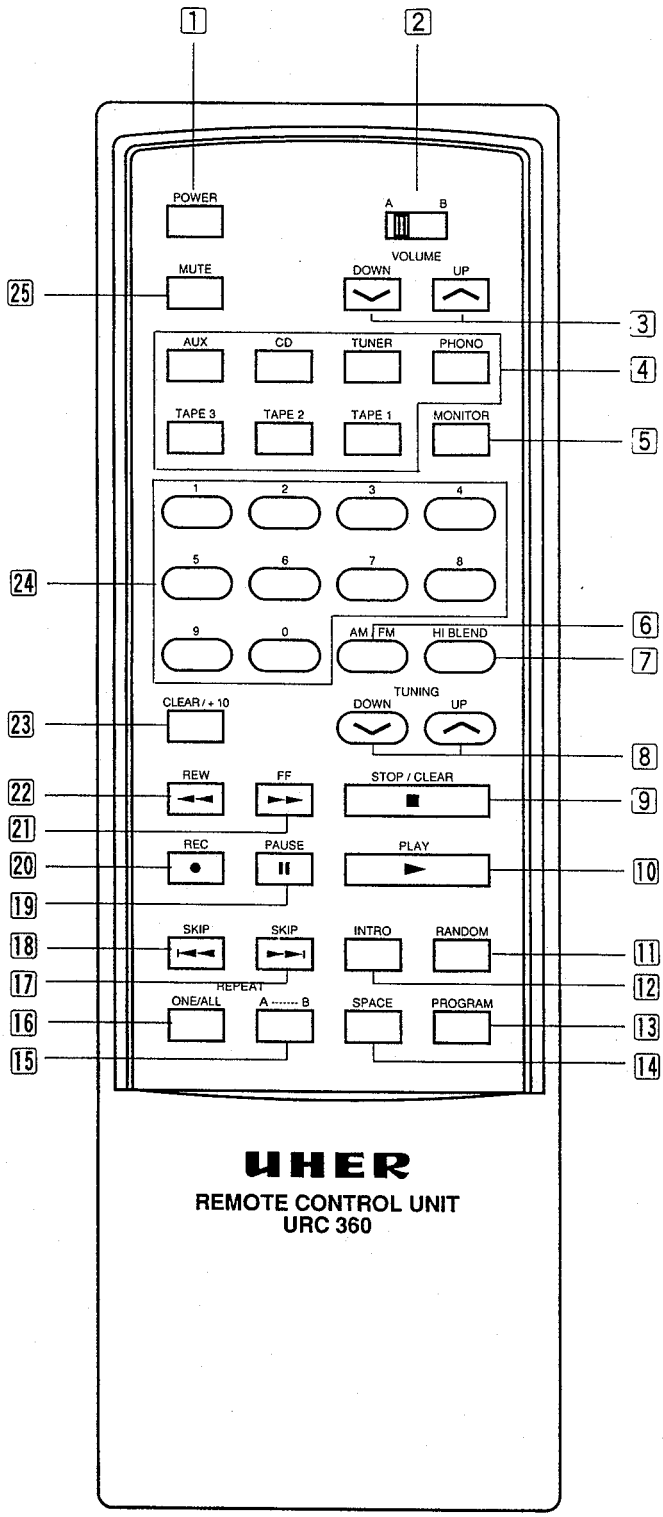
㊸. Remote control outlet CD−player **REMOTE OUT CD**

TO this outlet you can connect the CD−players UCD−410R, UCD−310R or UCD−210 by means of the special cable provided with the CD−player and then remote control their major functions.

㊹. Remote control outlet tuner **REMOTE OUT TUNER**

TO this outlet you can connect the tuner UT−1000R or T−210 by means of the special cable provided with the tuners (this cable with its jack plugs must not be mistaken for the cables of other devices !) and then remote control their major functions.

REMOTE CONTROL UNIT (FOR UA-160R)



Designation and Function **INSCRIPTION**

1. On/Off–key (stand–by) **POWER**

Turn the amplifier and all connected components on and off with this key.

2. Selector key for functions **A/B**

In position "A" the amplifier, the tuner and the cassette deck are controlled by remote control, in position "B" the amplifier and the CD–player.

3. Volume–level keys **VOLUME DOWN/UP**

Adjust the volume level with these keys.

4. Function switches

Select the requested program source by pressing the corresponding function key.
Explanation :

AUX	additional source (e. g. video recorder)
CD	CD–player
TUNER	radio (tuner)
PHONO	record player
TAPE 1	cassette deck 1
TAPE 2	cassette deck 2
TAPE 3	cassette deck 3

5. Monitor key **MONITOR**

Switch for replay on one cassette deck and for tape control during records.

6. Selector key for range **AM/FM**

Selet the requested receiving range with this key.
Explanation :
AM–medium wave
FM–ultra–short wave.

7. Key for noise reduction **HI BLEND**

Key for tone correction for weak FM stations (noise is reduced)

8. Tuning keys **TUNING DOWN/UP**

With these keys you activate the automatic station search downwards and upwards.

9. Stop–/delete key **STOP/CLEAR**

When using the cassette device (function–selection switch 2 set to "A") : recording and replay are stopped. In case of CD– operation (function–selector swich 2 set to "B") : replay is stopped, programming is deleted.

⑩. Replay-key **PLAY**

Replay from cassette deck (function-selector 2 set to "A") or, respectively, CD-player (function-selector 2 set to "B").

⑪. Key for random sequence **RANDOM**

Replay of all titles of a CD in a sequence chosen at random.

⑫. Sampling key **INTRO**

Key for short samples (approx. 10 seconds) of all titles of a CD.

⑬. Programming key **PROGRAM**

Key for entering a playing sequence, deliberately arranged of a CD (the memory is opened by pressing this key).

⑭. Key for spaces between individual titles **SPACE**

Allows for an additional space of approx. 3-4 seconds between the individual titles during CD-operation.

⑮. Repeat sequence key **REPEAT A-B**

With this key you determine a desired sequence of a title which the CD-player then will repeat continuously.

⑯. Repeat key **REPEAT ONE/ALL**

With this key you can choose whether the current title or all titles of the CD are to be repeated.

⑰. Skip key forwards **SKIP**

In order to skip to the next title of the CD, press this key. If programm key ⑬ was pressed previously : selection of the title to be memorised.

⑱. Skip key backwards **SKIP**

Pressing this key once takes you to the start of the current title pressing it twice takes you to the start of the previous title on the CD. If program key ⑬ had been pressed previously : selection of the title to be memorised.

⑲. Interruption key **PAUSE**

Key for short interruption of the replay during cassette or, respectively, CD- operation (depending on position of function-selector 2).

⑳. Recording Key **REC**

By pressing only this key a recording can be made by means of the cassette deck using the remote control. ("One touch recording").

㉑. Fast forward/search run key **FF**

Function-selector 2 set to "A" : key for fast forward run during cassette operation. Function-selector 2 set to "B" : key for search run forward during CD-operation.

㉒. Rewind/search run backward key **REW**

Function-selector 2 set to "A" : key for fast rewinding during cassette operation. Function-selector 2 set to "B" : key for search run backward during CD-operation.

㉓. Key for countinal reset/tens input **CLEAR/+10**

Function-selector 2 set to "A" : with this key the counter of the cassette deck is reset to "0". Function-selector 2 set to "B" : key for direct title selection in the tense range (example : title 15-first press the key 23 "+10", then the key "5" of the 24-keys.

㉔. Numeric keys **1-0**

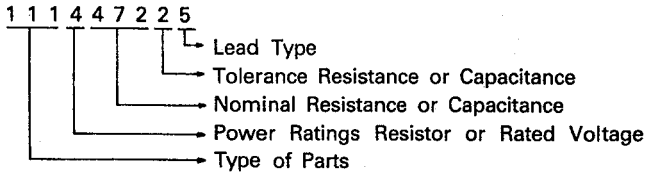
Function-selector 2 set to "A" : during tuner-operation these keys work as station keys. Function-selector 2 set to "B" : during CD-operation these keys serve for a direct selection of single-digit title numbers.

㉕. Mute key **MUTE**

With this key the volume is abruptly decrased by 20 dB. At the same time the green LED in the volume control will flash until the "MUTE" function is switched off again by re-pressing this key.

ELECTRICAL PARTS LIST

NOTE :
When ordering parts first convert parts number into code form as shown in the following examples.


1 1 1 4 4 7 2 2 5
Lead Type
Tolerance Resistance or Capacitance
Nominal Resistance or Capacitance
Power Ratings Resistor or Rated Voltage
Type of Parts

RESISTOR

ex) Power Ratings Resistors

8···1/8W	4···1/4W	5···1/2W
1···1W	2···2W	7···4W

ex) Resistor Value

479···4.7Ω	560···56Ω	681···680Ω
822···8.2K	123···12K	224···220KΩ

*CARBON film Resistor : 1[1][1]437225(3.7KΩ,1/4W)

CAPACITANCE

ex) Rated Voltage

0···4V	1···6.3V	2···10V	3···16V
4···25V	5···35V	6···50V	7···63V
8···80V	9···100V		

ex) Type of Ceramic Capacitor

71···CKDYB	75···CKDYF	80···CCDCH
88···CCDSL	84···CCDRH	86···CCDTH

ex) Capacitor Value

040···4pF	470···47pF	221···220pF
182···1800pF	103···0.01μF	473···0.047μF

ex) Tolerance Capacitance

0···C=±0.25pF	1···D=±0.5pF	2···F=±1pF
3···G=±2%	4···J=±5%	5···K=±10%
9···Z=+80% -20%	6···M=±20%	

*ELECTROLYTIC CAP : 1[4][2]647365(0.047μF,50V±20%)
*CERAMIC CAP : 1[8][8]647241(4700pF,50V±20%)
*MYLAR CAP : 1[5][0]647251(4700pF,50V,±10%)
*STYROL CAP : 1[5][3]643141(430pF,50V±5%)

MAIN P.C. BOARD PARTS

REF.NO.	PARTS NO.	DESCRIPTION
• SEMICONDUCTORS		
IC401	260012001	HD614043
IC101	241121071	KA7815/MC7815
IC102	244121171	KA7915/MC7915
IC103	244143842	KA7806
IC,REMOCON	244224254	UPD6122G 001
Q307,308	240315801	2SD668
Q313,314	240015121	KTA1659Y
Q311,312,309,310	240217321	KTC4370Y
Q301,302,303,304	240011425	KTA1268/KTA970-BL
Q103,501,502,605	240210925	KTC1627A-Y
Q102,353,354,401	240211135	KTC3198/KTC1815-GR
Q403,603,604,453		
Q454		
Q305,306	240211825	KTC3200/KTC2240-BL
Q101	240310621	KTD880A/KTD880-Y
Q351,352,455,402	240011835	KTA1266/KTA1015-GR
Q1,2	240215531	2SC3281-0
Q3,4	240014431	2SA1302-0
D110	241335041	RB602
D109	242106245	IN753A,6.2V
D607	242113035	IN964B,13V
D101,102,103,104	241358165	IN4003L
D105,106,107,108		
D111,151,309,310		
D311,312		
D112,301,302,303	241017995	ISS133
D304,305,306,307		
D308,401,402,403		
D488,503,504,608		
D609,497		
• RELAY AND COIL		
RY103,106	214011701	VB-24MBU
L301,302	212930501	0.7μH
• CAPACITORS		
C115,116	199113201	10000μF/63V
C313,314	188F02015	CCDSL 2C, 500V
C120	199810401	0.01μF/250V

MAIN P.C. BOARD PARTS

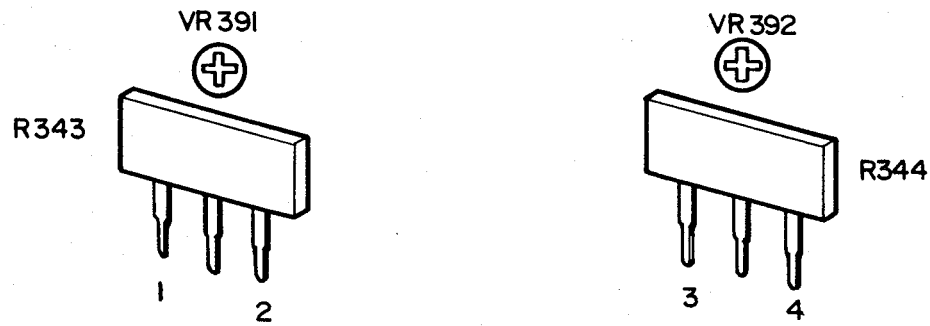
REF.NO.	PARTS NO.	DESCRIPTION
• RESISTORS		
R337,338,341	130447925	4.7,1/4W,PSF,5%
R342,401		
R333,334,335	130422125	220,1/4W,PSF,5%
R336,339,340		
R101,104,105,106	114110023	10,1W,5%,LMF
R108,345,346,347		
R348		
R103	114182123	820,1W,5%,LMF
R502,504	114127123	270,1W,5%,LMF
R107,151	114168223	6.8K,1W,5%,LMF
R851,852	114233123	330,2W,5%,LMF
R343,345	139020301	0.27X2, 5W+5W
• CERAMIC RESONATOR		
X401	213816901	CST4.0MGW
• SEMI FIXED RESISTOR		
VR391,392	251233101	330
• OTHERS		
REMOTE MODULE	212580201	KRM-33G
SPEAKER TERMINAL	215576601	4P,GOLD
SPEAKER TERMINAL	215576801	4P,WRAPPING,GOLD
HEAD PHONE,JACK	215561601	LGR4512-5000R
S/W,TACT	220899901	KHH-10910
LED(VR)	241904131	KLG205ET
BUSHING,STRAIN R	820111501	SR4N-6
MICA,SHEET	311821601	
CORD,AC	221110902	NDG-009-0
PLUG,PIN	221213301	P : 14,LINKER
AC,RECEPTACLE	215518301	S-I6536
POWER TRANS	213139901	
REMOCON ASS'Y	A12075501	R-120-731-11)
TRANS,SUB	213142401	DC14V,85mA
FU105	218861401	250V,T315mA
FU101,102,103,104	218863301	250V,T2.5A

CONTROL 1.P.C. BOARD PARTS

REF.NO.	PARTS NO.	DESCRIPTION
• SEMICONDUCTORS		
IC202	244214975	TC9163N
IC203	244216875	TC9164N
IC801	244215375	TA7291S
IC301,302,901,903	244140552	M5220P
IC201,902	244152041	NJM4558-DD
Q202	240210925	KTC1627A-Y
Q201,203	240211135	KTC3198/KTC1815-GR
Q298	240011835	KTA1266/KTA1015-GR
D201,901,902,903	241017995	ISS133
D904,905,906,909		
D910		
D907,908,911,912	241917351	SLR54YY5
D913,915,916,917		
D918		
D914	241912131	KLR114ET
• RELAY AND COIL		
RY102,105	214011401	RZ24
L802,803	212930401	10μH
L801,201,202	103410135	100μH
• VARIABLE RESISTORS		
VR901,902	250133101	100K20C,TONE
VR903	250134801	20KMN×2
VR801	250133502	20KB×2,RK16Y12MC
• SWITCHS		
SW4	219215201	SRM134
SW3	219215301	SRM126
S102,103,104,105	220899901	KHH-10910
S106,107,108,109		
SW11,12,14	220219801	NSG-097
SW16	220213402	NSG-034
SW15,13	220213201	NSG-032
• RESISTORS		
R228	114110023	10,1W,LMF
• OTHERS		
JACK,PIN 4P	215560801	4P,GOLD
JACK,RCA 2P	215561701	P : 14
JACK,MINI	215562001	LGY6502-0600

ADJUSTMENT

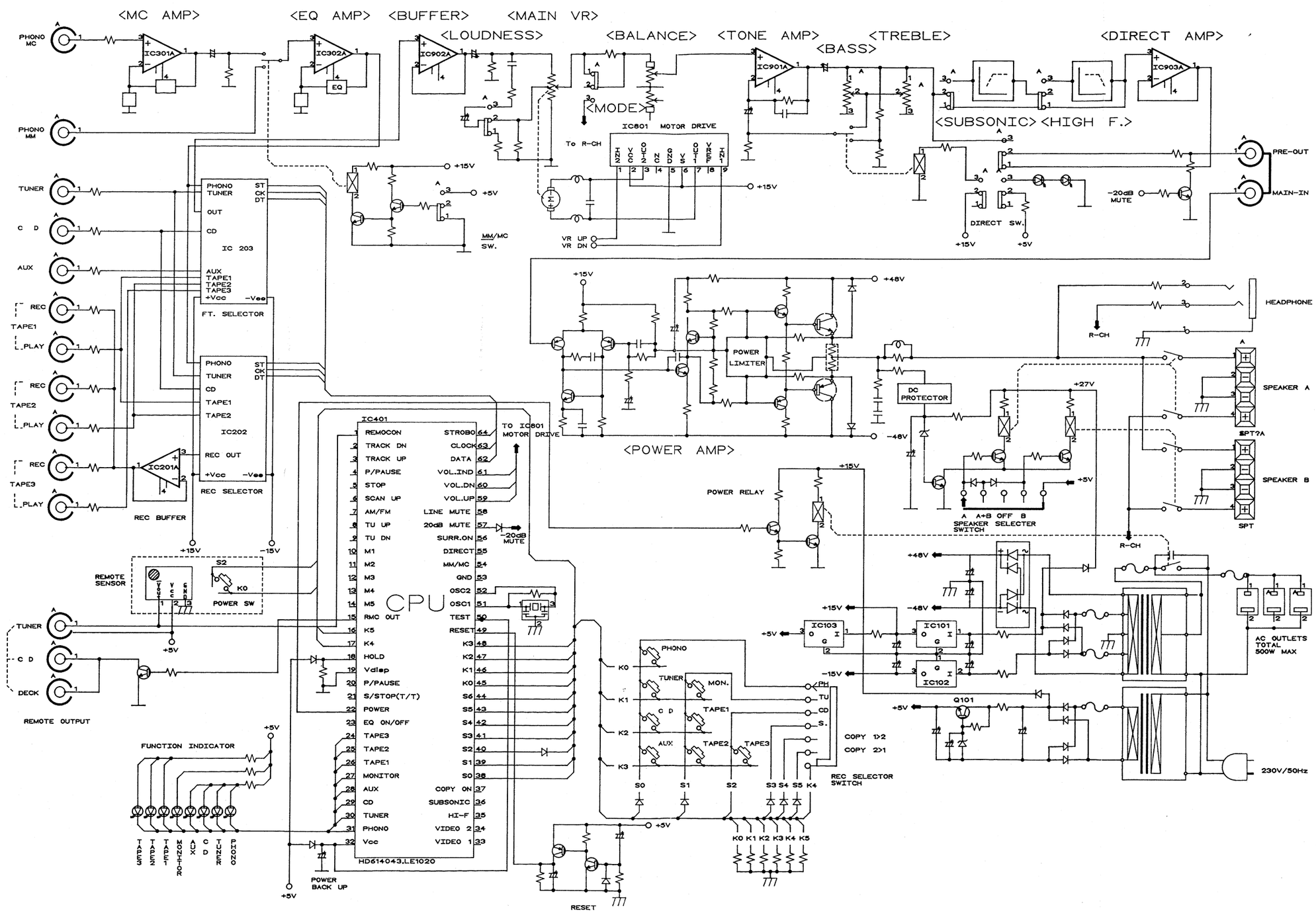
MAIN BOARD ASS'Y



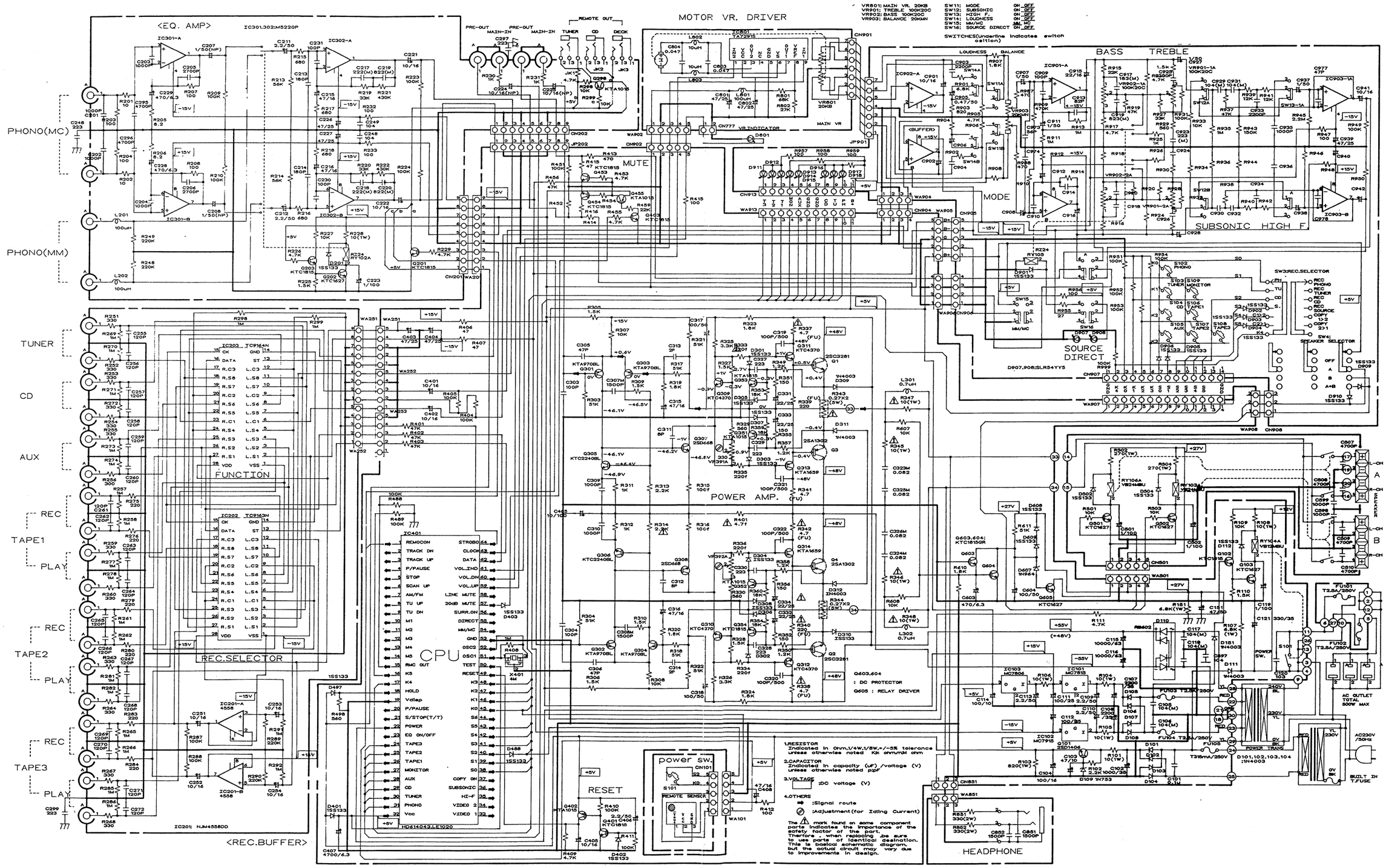
	Adjusting Point	Measuring Point	Adjusting Value
1	VR 391	R343①−②	less than 15mV
2	VR 392	R344③−④	less than 15mV

◦ Without any load or input signal, turn the Power switch ON.

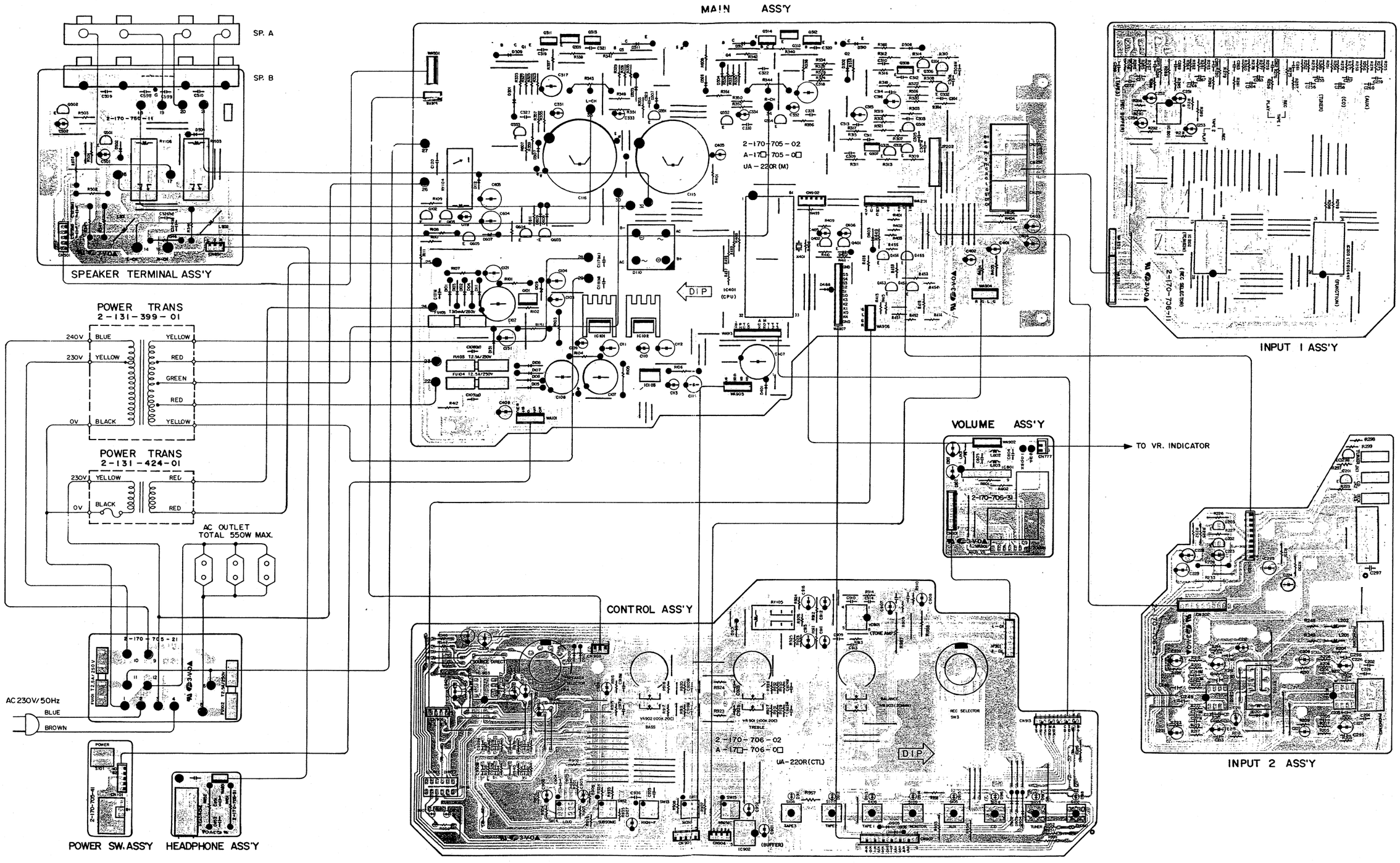
BLOCK DIAGRAM



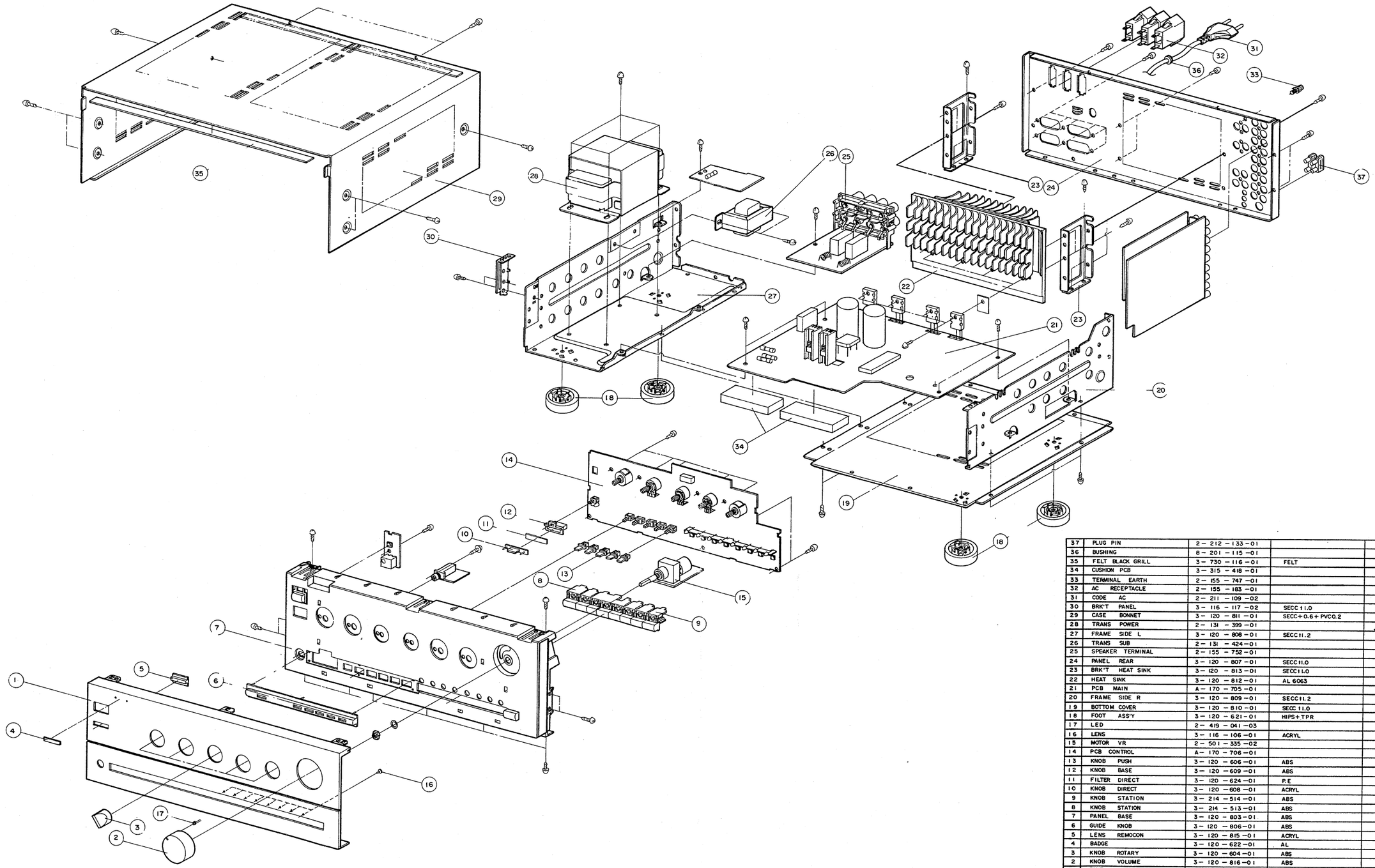
SCHEMATIC DIAGRAM



WIRING DIAGRAM



EXPLODED VIEW



NO.	PARTS NAME	PARTS NO.	MATERIAL	Q'TY
37	PLUG PIN	2 – 212 – 133 – 01		2
36	BUSHING	8 – 201 – 115 – 01		1
35	FELT BLACK GRILL	3 – 730 – 116 – 01	FELT	2
34	CUSHION PCB	3 – 315 – 418 – 01		2
33	TERMINAL EARTH	2 – 155 – 747 – 01		1
32	AC RECEPTACLE	2 – 155 – 183 – 01		3
31	CODE AC	2 – 211 – 109 – 02		1
30	BRK'T PANEL	3 – 116 – 117 – 02	SECC t1.0	1
29	CASE BONNET	3 – 120 – 811 – 01	SECC+0.6+PVC0.2	1
28	TRANS POWER	2 – 131 – 399 – 01		1
27	FRAME SIDE L	3 – 120 – 808 – 01	SECC t1.2	1
26	TRANS SUB	2 – 131 – 424 – 01		1
25	SPEAKER TERMINAL	2 – 155 – 752 – 01		2
24	PANEL REAR	3 – 120 – 807 – 01	SECC t1.0	1
23	BRK'T HEAT SINK	3 – 120 – 813 – 01	SECC t1.0	2
22	HEAT SINK	3 – 120 – 812 – 01	AL 6063	1
21	PCB MAIN	A – 170 – 705 – 01		1
20	FRAME SIDE R	3 – 120 – 809 – 01	SECC t1.2	1
19	BOTTOM COVER	3 – 120 – 810 – 01	SECC t1.0	1
18	FOOT ASS'Y	3 – 120 – 621 – 01	HIPS+TPR	4
17	LED	2 – 419 – 041 – 03		1
16	LENS	3 – 116 – 106 – 01	ACRYL	8
15	MOTOR VR	2 – 501 – 335 – 02		1
14	PCB CONTROL	A – 170 – 706 – 01		1
13	KNOB PUSH	3 – 120 – 606 – 01	ABS	5
12	KNOB BASE	3 – 120 – 609 – 01	ABS	1
11	FILTER DIRECT	3 – 120 – 624 – 01	P.E	1
10	KNOB DIRECT	3 – 120 – 608 – 01	ACRYL	1
9	KNOB STATION	3 – 214 – 514 – 01	ABS	1
8	KNOB STATION	3 – 214 – 513 – 01	ABS	1
7	PANEL BASE	3 – 120 – 803 – 01	ABS	1
6	GUIDE KNOB	3 – 120 – 806 – 01	ABS	1
5	LENS REMOCON	3 – 120 – 815 – 01	ACRYL	1
4	BADGE	3 – 120 – 622 – 01	AL	1
3	KNOB ROTARY	3 – 120 – 604 – 01	ABS	5
2	KNOB VOLUME	3 – 120 – 816 – 01	ABS	1
1	PANEL FRONT	3 – 120 – 802 – 01	AL	1